Status

Invoked by	ESC [5 n
Response	ESC [0 n (terminal ok)

What Are You

Invoked by	ESC [c or ESC [0 c
Response	ESC [? 5 ; 0 c or ESC [? 5 c (meaning: I am GIGI terminal)

Alternately invoked by ESC Z (not recommended). Response is the same.

Reset

Invoked by	ESC c (same as pressing SHIFT/PF4)

Reset causes the reset routine to be executed. The SET-UP parameters, BASIC program, and soft character sets are not destroyed.

Print Commands

Function	Command
Print display image	ESC # 7 (Same as pressing SHIFT/PF1.)
Print partial image	ESC [Pn ; Pn !q

Pn are numeric parameters that specify start and stop line numbers inclusive.

Confidence Tests

Generate cross hatch pattern on display	ESC # 8
Perform self tests	ESC [3 ; Pn ; Pn ; . . . y

Pn selects the test to be performed as follows

Pn	Test Selected
1	All power up tests
2	External communications test
3	Hardcopy communications test
4	Display pattern test
5	Color bar test
9	Repeat selected tests until failure

Device Control Strings

String	Command
ReGIS data to follow	ESC P p (host to terminal)
SET-UP data to follow	ESC P r (host to terminal)
Auxiliary keypad data to follow	ESC P key ID code s (host to term)
Hardcopy data to follow	ESC P q (terminal to printer)*
String terminator	ESC \

All device control strings must be terminated with a string terminator. For example:

ESC P r . . . SET-UP data . . . ESC \

* This string is issued by GIGI to LA34 Graphics Printer, GIGI does not process it.

VT52 CONTROL FUNCTION SUMMARY

Function	Command
Cursor up	ESC A
Cursor down	ESC B
Cursor right	ESC C
Cursor left	ESC D
Select soft character set 1	ESC F
Select ASCII character set	ESC G
Cursor to home	ESC H
Reverse line feed	ESC I
Erase to end of screen	ESC J
Erase to end of line	ESC K
Direct cursor address	ESC Y lc*
Identify	ESC Z†
Enter alternate keypad mode	ESC =
Exit alternate keypad mode	ESC >
Enter ANSI mode	ESC <
Dump hardcopy	ESC]
Enter graphics mode (ReGIS)	ESC P p
Exit graphics mode	ESC \

* l = line number, c = column number. Line and column numbers for direct cursor address are single character codes whose values are the desired number plus 37_8. Line and column numbers start at 1.

† The response to ESC Z is ESC / Z. This is not recommended. Use ESC [0 c in ANSI MODE.

AUXILIARY KEYPAD NUMERIC KEY CODES WHEN PK0 SET

Key	Key ID Code	Keypad Numeric Mode (KP0)	Keypad Application Mode (KP1) ANSI (TM1)	VT52 (TM0)
0	0	0	ESC O p	ESC ? p
1	1	1	ESC O q	ESC ? q
2	2	2	ESC O r	ESC ? r
3	3	3	ESC O s	ESC ? s
4	4	4	ESC O t	ESC ? t
5	5	5	ESC O u	ESC ? u
6	6	6	ESC O v	ESC ? v
7	7	7	ESC O w	ESC ? w
8	8	8	ESC O x	ESC ? x
9	9	9	ESC O y	ESC ? y
–	10	–	ESC O m	ESC ? m
,	11	,	ESC O l*	ESC ? l*
.	12	.	ESC O n	ESC ? n
ENTER	13	Same as RETURN	ESC O M	ESC ? M

* Last character of sequence is lowercase L (154_8).

AUXILIARY KEYPAD PF KEY CODES WHEN PK0 SET

Key	Key ID Code	ANSI (TM1)	VT52 (TM0)
PF1 [HARD COPY]	14	ESC O P	ESC ? P
PF2 [LOCTR]	15	ESC O Q	ESC ? Q
PF3 [TEXT]	16	ESC O R	ESC ? R
PF4 [RESET]	17	ESC O S	ESC ? S

CURSOR CONTROL KEY CODES WHEN PK0 SET

Cursor Key (arrow)	Key ID Code	VT52 Mode (TM0)	ANSI Mode (TM1) and Cursor Key Mode Reset (CK0)	ANSI Mode (TM1) and Cursor Key Mode Set (Application) (CK1)
Up	18	ESC A	ESC [A	ESC O A
Down	19	ESC B	ESC [B	ESC O B
Right	20	ESC C	ESC [C	ESC O C
Left	21	ESC D	ESC [D	ESC O D

TERMINAL SET-UP PARAMETERS AND MNEMONICS

Transmit speed	TS	Receive speed	RS
Line/local	LL	BASIC	BA
Parity enable	PE	XON/XOFF	XO
Scroll mode	SM	Reverse video	RV
Horizontal margins	HM	Vertical margins	VM
Expansion mode	EM	Horizontal position	HP
Overstrike	OS	Visual cursor	VC
Text display	TD	Graphics display	GD
Graphics prefix	GP	Single character	SC
Local echo	LE	New line	NL
Auto hardcopy	AH	Auto wraparound	AW
Key repeat	KR	Keyclick	KC
Margin bell	MB	Terminal mode	TM
Numeric keypad mode	KP	Cursor key mode	CK
Programmed keypad mode	PK	Tablet locator mode	TL
UK character set	UK	Comm. interface	CI
Hardcopy speed	HS	Power frequency	PF
Interlace	IL	Self test	ST

TERMINAL SUPPORTED CONTROL CHARACTER FUNCTIONS

Key Pressed with CTRL Key	Control Code	Action Taken
G	BEL	Ring terminal bell
H	BS	Backspace cursor by one position
I	HT	Horizontal tab (interpreted as a space without writing in ReGIS quoted string)
J	LF	Line feed
L	FF	Form feed; clear screen and home cursor
M	CR	Carriage return
N	SO	Shift out
O	SI	Shift in
Q	DC1 (XON)	Resume transmitting
S	DC3 (XOFF)	Stop transmitting
X	CAN	Cancel or abort escape sequence
Z	SUB	Same effect as CAN
[	ESC	Escape

BASIC COMMANDS/STATEMENTS

AUTO	ERL	ON . . . GOSUB
CLEAR	ERROR	ON . . . GOTO
CONT	FOR . . . NEXT	OPTION BASE
CTRLC	GOSUB . . . RETURN	PRINT
CTRLO	GOTO	RANDOMIZE
RCTRLC	HOST	READ
RCTRLO	IF . . . THEN [. . . ELSE]	REM
DATA	IF . . . GOTO	RESTORE
DEF FN	INPUT	RESUME
DELETE	LET	RUN
DIM	LINPUT	SAVE
ECHO	LIST	STOP
NO ECHO	MID	SWAP
EDIT	NEW	TRON/TROFF
END	OLD	WHILE . . . WEND
ERASE	ON ERROR GO TO	WIDTH
ERR		

BASIC FUNCTIONS

ABS	GON$	MID$	SPC$
ASC	HEX$	OCT$	SQR
ATN	INKEY$	POS	STR$
CHR$	INSTR	RIGHT$	STRING$
COS	INT	RND	TAB
EXP	LEFT$	SGN	TAN
FRE	LEN	SIN	
GOFF$	LOG	SPACES	

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EK-0GIGI-RC-001

GIGI PROGRAMMING REFERENCE CARD

ReGIS SUMMARY

To program functions listed in the right column, you must send the characters shown in bold and color in the left column. For example, to program a Red background on the screen first press **S(I(R))**. All commands must be preceded by a basic command (**S**creen, **W**rite, **P**ositions, etc.) followed by one or more modifiers for that command.

Screen

Command	Function
d . . .	Screen scroll offset, quantified to [12,8]
[x,y]	Move this address to upper left corner
[dx,dy]	Scroll screen by this amount
(W)	Writing controls
(Erase)	Clear data and set foreground color
(Addressing [x1,y1] [x2,y2])	Compatibility with other ReGIS devices
(Addressing)	Restore native addressing
(Negate 1)	Reverse video
(Negate 0)	Restore video to normal mode
(Time nnn)	In 60ths (PF0) or 50ths (PF1) of a second
(Hardcopy [,Y1] [,Y2])	Print hardcopy between Y coordinates
(Intensity	Screen background intensity/color
0 to **7)**	Dark to bright
(D))	Dark
(Blue))	
(Red))	
(Magenta))	Red and blue
(Green))	
(Cyan))	Green and blue
(Yellow))	Red and green
(White))	Red, green and blue
(Hue	
0 to **360))**	Angle on color wheel
(Lightness	
0 to **100))**	Percentage
(Saturation	
0 to **100))**	Percentage

Write

Command	Function
(Intensity	Writing intensity/color
. . .	Null; change no colors
0 to 7	Dark to bright
(D))	Dark
(Blue))	
(Red))	
(Magenta))	Red and blue
(Green))	
(Cyan))	Green and blue
(Yellow))	Red and green
(White))	Red, green and blue
(Hue	
0 to 100))	Angle on color wheel
(Lightness	
0 to 100))	Percentage
(Saturation	
0 to 100))	Percentage
(Alternate	
1)	Flashing on
0)	Flashing off
(Shade from [,Y])	Set shading axis
(Shade with "c")	Set shading character
(Shade	
1)	Shade on, line pattern shading
0)	Shade off
(Multiplier nnn)	Pixels per offset vector
(Negate	
1)	Negative writing (invert pattern bits)
0)	Positive writing
(Complement)	Exclusive OR pattern with bit map
(oVerlay)	Logical OR pattern with bit map
(Erase)	Write "Negate" setting
(Replace)	Replace, ignore bit map data
(Pattern	
bbbbb)	Binary bit pattern, fills to 8 places
(Md))	Multiply each bit pattern
1)	Solid line
p)	Digits 2-9 specify standard patterns

Position

Command	Function
[X,Y]	Absolute position
[dx,dy]	Relative position
d . . .	"d" is offset vector 0-7
(W)	Temporary write controls
(Begin)	Begin position sequence – save position (up to 7 levels)
(End)	End and restore starting position

Vector

Command	Function
[ ]	Write point at current cursor position
[X,Y]	Absolute position
[dx,dy]	Relative position
d . . .	"d" is offset vector 0-7
(W. . .)	Temporary write controls
(Begin)	Begin closed polygon sequence
(End)	Draw to starting position

Curve

Command	Function
[X,Y]	Absolute coordinates
[dx,dy]	Relative coordinates
d . . .	Offset vector 0-7
(Begin)	Begin closed curve
(Start)	Start open curve
(End)	End curve
(W. . .)	Temporary writing controls

Circle

Command	Function
[X,Y]	Absolute coordinates
[dx,dy]	Relative coordinates
d . . .	Offset vector 0-7
(Circumference)	Position is on circumference
(Angle d)	d = degrees resolution, signed
(W. . .)	Temporary writing controls

Text

Command	Function
'string'	Display 'string' (includes BS, CR, LF, TAB)
"string"	Display 'string' (includes BS, CR, LF, TAB)
d . . .	Offset text line by ½ character space, d is 0-7
[dx,dy]	Set spacing between characters
(Alphabet	
0 to 3)	Select character set 0 – 3
(Begin)	Begin temporary text attributes (saves one level)
(Direction d)	d = 45° resolution, signed
(End)	Restore permanent text attributes
(Height	
0 to 16)	Height times base character size (affects S [r,c]
(Italic	
+ degrees)	Right slant, number degrees
– degrees)	Left slant, number degrees
0)	No slant
(Multiplier [r,c])	Number of times to repeat bits in character ([1,2] used for standard size)
(Size [r,c])	Dimensions of character area, ([9,20] is standard size)
(Size	
0 to 16)	Select one of 17 predefined character sizes
(W. . .)	Temporary writing controls

Load

Command	Function
(Alphabet	
1 to 3)	Select character set 1 – 3
'name')	1 – 10 character name for character set [see R(L)]
"c" <10 hex pairs>	Load specific letter with pattern
'c' <10 hex pairs>	Load specific letter with pattern

Report

Command	Function
(Loaded)	Currently loaded character set name
(Macrographs	
(letter , . . .))	Report contents of macrograph "letter"
(=))	Report macrograph space usage
(Position	
)	Current position
(Interactive	
))	Enter locator mode (same as pressing SHIFT/PF2)
[+dx,+dy]))	Arrow increments

Other Functions

Command	Function
@ letter	Invoke macrograph "letter"
@ :letter . . . @;	Load macrograph "letter"
@ .	Clear all macrographs
;	Resynchronization character

Offset vector:

3	2	1
4	–	0
5	6	7

To initialize ReGIS: ;S (I0N0A)W(V17A0S0M1N0P1M2)T(I0A0D0S1) P[0,0]

ANSI CONTROL FUNCTIONS SUMMARY

Cursor Movement Commands

Function	Command
Cursor Up	ESC [Pn A*
Cursor Down	ESC [Pn B*
Cursor Forward (Right)	ESC [Pn C*
Cursor Backward (Left)	ESC [Pn D*
Direct Cursor Addressing	ESC [Pl ; Pc H†
	ESC [Pl ; Pc f
Index	ESC D
New Line	ESC E
Reverse Index	ESC M
Save Cursor and Attributes	ESC 7
Restore Cursor and Attributes	ESC 8

* Pn represents a decimal parameter expressed as a string of ASCII digits. Multiple parameters are separated by the semicolon character (073_8). If a parameter is omitted or specified as 0, the default parameter value is used. For cursor movement commands, the default parameter value is 1.

† Pl = line number; Pc = column number.

Character Attributes

ESC [Ps ; Ps; Ps ; . . .; Ps m

	Parameter	Function
Ps =	0 or None	All attributes off
	2	Half bright (or green)
	4	Underscore on
	5	Blink on
	7	Reverse video on
	30	Black writing color
	31	Red writing color
	32	Green writing color
	33	Yellow writing color
	34	Blue writing color
	35	Magenta writing color
	36	Cyan writing color
	37	White writing color
	40	Black screen color
	41	Red screen color
	42	Green screen color
	43	Yellow screen color
	44	Blue screen color
	45	Magenta screen color
	46	Cyan screen color
	47	White screen color

Multiple parameters are separated by the semicolon character (073_8). The parameters are executed in order. Ignore other parameters.

Erasing

Function	Command
From Cursor to End of Line	ESC [K or ESC [0 K
From Beginning of Line to Cursor	ESC [1 K
Entire Line Containing Cursor	ESC [2 K
From Cursor to End of Screen	ESC [J or ESC [0 J
From Beginning of Screen to Cursor	ESC [1 J
Entire Screen	ESC [2 J

Programmable LEDs

ESC [Ps ; Ps ; . . .Ps q

	Parameter	Function
Ps =	0 or None	All LEDs off
	1	LED 1 on
	2	LED 2 on

Multiple parameters are separated by the semicolon character (073_8). The parameters are executed in order.

Select Character Sets (G0 and G1)

Character Set	G0	G1
UK	ESC (A	ESC) A
US ASCII	ESC (B	ESC) B
Soft Set 1	ESC (0	ESC) 0
Soft Set 2	ESC (1	ESC) 1
Soft Set 3	ESC (2	ESC) 2

Enter Graphic Mode

Command	Function
ESC Pp	Enter and remain in graphic mode until next ESCape sequence.
Linefeed (LF) !	Enter and remain in graphic mode until next Linefeed character, if GP1 is selected.

Modes

SET-UP parameters are affected by these modes.

TO SET MODES

SET-UP Para	Name	Mode	Sequence
NL	Linefeed/ New line	New line	ESC [20 h
CK	Cursor key	Application	ESC [? 1 h
TM	ANSI/VT52	ANSI	N/A
SM	Scrolling	Smooth	ESC [? 4 h
RV	Screen	Reverse	ESC [? 5 h
AW	Wraparound	On	ESC [? 7 h
AR	Autorepeat	On	ESC [? 8 h
OS	Overstrike	On	ESC [? 20 h
BA	Local BASIC	Local	ESC [? 21 h
BA	Host BASIC	Host	ESC [? 22 h
PK	Programmed Keypad	Programmed	ESC [? 23 h
AH	Auto hardcopy	On	ESC [? 24 h
KP	Keypad	Application	ESC =

TO RESET MODES

SET-UP Para	Name	Mode	Sequence
NL	Linefeed/ New line	Line feed	ESC [20 l*
CK	Cursor key	Cursor	ESC [? 1 l*
TM	ANSI/VT52	VT52	ESC [? 2 l*
SM	Scrolling	Jump	ESC [? 4 l*
RV	Screen	Normal	ESC [? 5 l*
AW	Wraparound	Off	ESC [? 7 l*
AR	Autorepeat	Off	ESC [? 8 l*
OS	Overstrike	Off	ESC [? 20 l*
BA	Local BASIC	BASIC off	ESC [? 21 l*
BA	Host BASIC	BASIC off	ESC [? 22 l*
PK	Programmed Keypad	Normal	ESC [? 23 l*
AH	Auto hardcopy	Off	ESC [? 24 l*
KP	Keypad	Numeric	ESC >

* Last character of sequence is lowercase L (154_8).

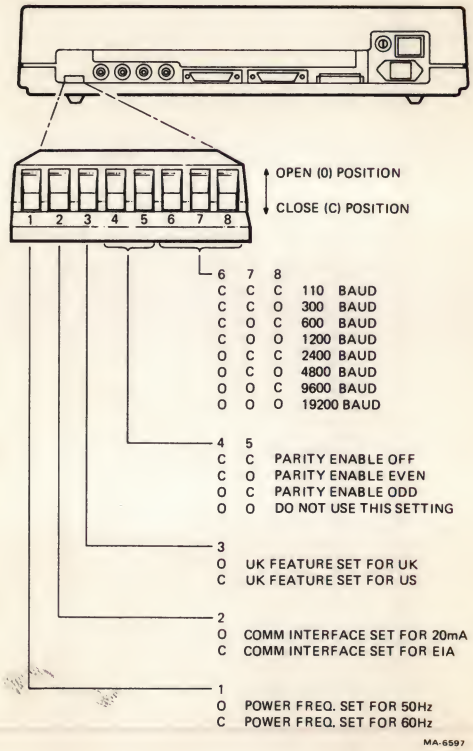
Reports

Cursor Position

Invoked by	ESC [6 n
Response	ESC [; R

(Pl = line number; Pc = column number)

SET-UP Parameter	Para Code	Set Code	Displayed Message	Meaning
Self test	ST	1	ST1 PwUp	Select powerup self test
	ST	2	ST2 ExCm	Select external communication test
	ST	3	ST3 HcCm	Select hardcopy communication test
	ST	4	ST4 Dspl	Select display pattern test
	ST	5	ST5 CBar	Select color bar test pattern
	ST	9	ST9 Rept	Repeat selected test(s) until failure
	ST	0	ST0 Clr	Clear all selected test(s)



VK100 Default SET-UP Switches

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EK-VK100-RC-001

GIGI TERMINAL SET-UP REFERENCE CARD

SET-UP Parameter	Para Code	Set Code	Displayed Message	Meaning
Transmit speed	TS	0	TS0 110*	Set to 110 baud
	TS	1	TS1 300	Set to 300 baud
	TS	2	TS2 600	Set to 600 baud
	TS	3	TS3 1200	Set to 1200 baud
	TS	4	TS4 2400	Set to 2400 baud
	TS	5	TS5 4800	Set to 4800 baud
	TS	6	TS6 9600	Set to 9600 baud
	TS	7	TS7 19.2	Set to 19,200 baud
Receive speed	RS	0	RS0 110*	Set to 110 baud
	RS	1	RS1 300	Set to 300 baud
	RS	2	RS2 600	Set to 600 baud
	RS	3	RS3 1200	Set to 1200 baud
	RS	4	RS4 2400	Set to 2400 baud
	RS	5	RS5 4800	Set to 4800 baud
	RS	6	RS6 9600	Set to 9600 baud
	RS	7	RS7 19.2	Set to 19,200 baud
Local/line	LL	0	LL0 Locl	Local mode
	LL	1	LL1 OnLn†	On-line mode
BASIC	BA	0	BA0 Off†	Disabled
	BA	1	BA1 Locl	Enabled in local mode
	BA	2	BA2 Host	Enabled in host mode
Parity enable	PE	0	PE0 Off*	Parity off, bit 8 set to SPACE
	PE	1	PE1 Even	Even parity on, bit 8 set to even parity and checked
	PE	2	PE2 Odd	Odd parity on, bit 8 set to odd parity and checked
XON/XOFF	XO	0	XO0 Off	Not sent automatically
	XO	1	XO1 On†	Sent automatically
Scroll	SM	0	SM0 Off	No scrolling
	SM	1	SM1 Jump	Jump scroll
	SM	2	SM2 Smth†	Smooth scroll
	SM	3	SM3 Wrap	Wrap scroll
Reverse video	RV	0	RV0 Off†	Normal video
	RV	1	RV1 On	Reverse video
Horizontal margins	HM	0	HM0†	None
	HM	1–9	HM(1–9)	1 to 9 characters from left and right

* This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of GIGI Terminal Installation and Owner's Manual (EK-VK100-IN).

† Indicates default value of parameter

SET-UP Parameter	Para Code	Set Code	Displayed Message	Meaning
Vertical margins	VM	0	VM0†	None
	VM	1–9	VM(1–9)	1 to 9 characters from top and bottom
Expansion mode	EM	0	EM0 Norm†	Normal display
	EM	0	EM1 Expn	Expanded mode (double width text characters)
Horizontal position	HP	0–9	HP(0–9)	Horizontal display position
	HP	5	HP5†	Normal horizontal display position
Overstrike	OS	0	OS0 Off†	Normal text replacement
	OS	1	OS1 On	Overlay text writing
Visual cursor	VC	0	VC0 Off	Disable visual cursor
	VC	1	VC1 Text	Enable text visual cursor
	VC	2	VC2 Grph	Enable graphics visual cursor
	VC	3	VC3 Both†	Enable both cursors
Text display	TD	0	TD0 Norm†	Normal processing of text display
	TD	1	TD1 Text	Display all characters as text (transparency mode): all characters are displayed as text and not processed, except LF (displayed as next line)
	TD	2	TD2 Ctrl	Process all characters normally, display all nonrecognized characters as text
Graphics display	GD	0	GD0 Norm†	Normal processing of graphics
	GD	1	GD1 Text	Display graphics commands as text
	GD	2	GD2 Top	Display last line of ReGIS at top of screen
	GD	3	GD3 Bot	Display last line of ReGIS at bottom of screen
Graphics prefix	GP	0	GP0 Off†	Disabled
	GP	1	GP1= "!"	Enabled Prefix character is in quotes
Single character	SC	0	SC0 Off†	Normal communications operation
	SC	1	SC1 On	Single character operation
Local echo	LE	0	LE0 Off†	None
	LE	1	LE1 On	Local echo every keystroke
New line	NL	0	NL0 Off†	Disabled
	NL	1	NL1 On	Enabled
Auto hardcopy	AH	0	AH0 Off†	Disabled
	AH	1	AH1 On	Enabled

† Indicates default value of parameter

SET-UP Parameter	Para Code	Set Code	Displayed Message	Meaning
Auto wraparound	AW	0	AW0 Off	Disabled
	AW	1	AW1 On†	Enabled
Key repeat	KR	0	KR0 Off	Disabled
	KR	1	KR1 On†	Enabled
Keyclick	KC	0	KC0 Off	Disabled
	KC	1	KC1 On†	Enabled
Margin bell	MB	0	MB0 Off	Disabled
	MB	1	MB1 On†	Enabled
Terminal mode	TM	0	TM0 VT52	VT52
	TM	1	TM1 ANSI†	ANSI
Keypad mode	KP	0	KP0 Norm†	Numeric
	KP	1	KP1 Appl	Application
Cursor key mode	CK	0	CK0 Norm†	Cursor key
	CK	1	CK1 Appl	Cursor key application
Programmed keypad mode	PK	0	PK0 Off†	Disabled
	PK	1	PK1 On	Enabled
Tablet locator mode	TL	0	TL0 Off†	Four cursor keys control locator mode
	TL	1	TL1 On	Tablet or cursor keys control locator mode
UK character set	UK	0	UK0 U.S.*	US
	UK	1	UK1 U.K.	UK
Communication interface used	CI	0	CI0 EIA*†	EIA selected
	CI	1	CI1 20mA	20 mA selected
Hardcopy speed	HS	0	HS0 110	Set to 110 baud
	HS	1	HS1 300	Set to 300 baud
	HS	2	HS2 600	Set to 600 baud
	HS	3	HS3 1200	Set to 1200 baud
	HS	4	HS4 2400	Set to 2400 baud
	HS	5	HS5 4800	Set to 4800 baud
	HS	6	HS6 9600†	Set to 9600 baud
	HS	7	HS7 19.2	Set to 19,200 baud
Power frequency	PF	0	PF0 60Hz*	60 Hz
	PF	1	PF1 50Hz	50 Hz
Interlace	IL	0	IL0 Off†	
	IL	1	IL1 On	

* This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of GIGI Terminal Installation and Owner's Manual (EK-VK100-IN).

† Indicates default value of parameter